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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/052,089	01/16/2002	Krishna Seshan	884.659US1	9871

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EXAMINER

STONER, KILEY SHAWN

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 08/19/2003

6

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/052,089

Applicant(s)

SESHAN ET AL.

Examiner

Kiley Stoner

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2,4,5,9,24-27 and 31-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2,5,9,24-27 and 31-36 is/are allowed.
- 6) ☒ Claim(s) 4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other:

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DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Uzoh (6,180,505 B1) in view of Applicant's Admitted Prior Art (AAPA). Uzoh teaches forming a protective structure over a metallization copper pad, wherein the metallization copper pad makes contact with a device, and wherein the protective structure includes a metal first film disposed above and on the metallization copper pad and a metal second film disposed above and on the metal first film; and at the metal second film, wire bonding the device (abstract; Figures 3-9; column 2, lines 23-36; column 5, line 63-column 6, line 56; and column 7, lines 13-53). Uzoh does not teach that the metallization copper pad is a metal-six copper (M6 Cu) pad.

AAPA teaches "In one embodiment, where deposition is upon a Cu M6 metallization pad 114 as known in the art, initial deposition will be achieved in the presence of the Cu M6 pad 114" (page 7 of the specification, lines 8-10). The applicant is admitting that Cu M6 pads are known in the art. Because Uzoh is silent with respect to the specific copper material used as the pad it would have been obvious to use any copper based material for the copper pad. At the time of the invention it would have

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been obvious to combine the Cu M6 metallization pad of AAPA with the method of Uzoh in order to reduce oxidation and form a strong reliable bond.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Edelstein et al. (6,457,234 B1) in view of Applicant's Admitted Prior Art (AAPA). Edelstein et al. teaches forming a protective structure over a metallization copper pad, wherein the metallization copper pad makes contact with a device, and wherein the protective structure includes a metal first film disposed above and on the metallization copper pad and a metal second film disposed above and on the metal first film; and at the metal second film, wire bonding the device (abstract; Figure 9; column 8, lines 4-45; and column 10, lines 36-67).

AAPA teaches "In one embodiment, where deposition is upon a Cu M6 metallization pad 114 as known in the art, initial deposition will be achieved in the presence of the Cu M6 pad 114" (page 7 of the specification, lines 8-10). The applicant is admitting that Cu M6 pads are known in the art. Because Edelstein et al. is silent with respect to the specific copper material used as the pad it would have been obvious to use any copper based material for the copper pad. At the time of the invention it would have been obvious to combine the Cu M6 metallization pad of AAPA with the method of Edelstein et al. in order to reduce oxidation and form a strong reliable bond.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nagasaka et al. (5,308,686) in view of Applicant's Admitted Prior Art (AAPA). Nagasaka et al.

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teaches forming a protective structure over a metallization copper pad, wherein the metallization copper pad makes contact with a device, and wherein the protective structure includes a metal first film disposed above and on the metallization copper pad and a metal second film disposed above and on the metal first film; and at the metal second film, wire bonding the device (Figures 1 or 7; column 3, lines 39-54).

AAPA teaches "In one embodiment, where deposition is upon a Cu M6 metallization pad 114 as known in the art, initial deposition will be achieved in the presence of the Cu M6 pad 114" (page 7 of the specification, lines 8-10). The applicant is admitting that Cu M6 pads are known in the art. Because Nagasaka et al. is silent with respect to the specific copper material used as the pad it would have been obvious to use any copper based material for the copper pad. At the time of the invention it would have been obvious to combine the Cu M6 metallization pad of AAPA with the method of Nagasaka et al. in order to reduce oxidation and form a strong reliable bond.

Response to Arguments

Applicant's arguments with respect to claim 4 have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

Claims 2, 5, 24-27 and 31-36 are allowed.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kiley Stoner whose telephone number is (703) 305-0723. The examiner can normally be reached on Monday-Thursday (7:30 a.m. to 6:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on Monday-Friday. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Kiley Stoner A.U. 1725

Kiley Stoner 8-12-03